

United States Environmental Protection Agency
National Advisory Council for Environmental Policy and Technology

**Recommendations of the Effluent Guidelines Task Force:
Removing the Bottlenecks from the Effluent Guidelines Process**

Report and Recommendations of the Effluent Guidelines Task Force

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The Task Force was asked by EPA to develop recommendations to improve the rate at which effluent guidelines are promulgated. The Task Force was not successful in redesigning the overall effluent guidelines development process to expedite the promulgation of regulations. However, the analysis of EPA's current procedures did lead to the formulation of recommendations in four areas which could benefit from streamlining. These are: Project Management; Data Collection and Analysis; Laboratory Analysis Methods and Support; and Industry Subcategorization. The recommendations were prepared by Work Group 12 and approved by the Task Force at its meeting on November 16, 1994.

1. Project Management

To date the Task Force has often considered the need to improve project management regarding Effluent Guidelines. The task is in fact monumental especially when we consider the conflicting legal, technical and industrial goals. Nonetheless, the vastly improved early outreach efforts and open process used in the Pulp and Paper rulemaking suggests several opportunities for improvement.

The project manager has many incentives to change. Some complain that the effluent guidelines process at best simply freezes the industry into the status quo. Others note how difficult it is for EPA to promulgate on time. Still others say the process is too costly, too slow, or too often limited. In response, what can be done?

The Task Force felt much progress is still possible. The most productive ways to avoid the usual traffic jams can be summarized as follows.

Recommendation 1.1. Project Manager

EPA should identify separate personnel to manage Effluent Guidelines projects. At a minimum, EPA must continue the trend to use the individuals experienced in project management, rather than automatically using the regulation technical person.

The historical way to develop effluent guidelines is to use a technical person who in fact has responsibility for both technical and supervisory activities, along with an economist and a statistician (both part-time). Currently, the personnel may not generally have the experience in project management to develop a new regulation which fits the overall "big picture." The lack of experience results in much individual direction starting from scratch, leading to a regulation which is developed vastly differently from previous regulations. One experienced project management person could manage several regulations. (Recently EPA has assigned economists to manage two of the projects.) Project management training needs to take place for all managers

to develop an institutional memory which builds on the success of past established effluent guidelines.

Effluent guidelines project managers should be empowered to work with representatives from legal, economic and engineering staff. However, project managers may be generalists with communications and “people” skills who apply policy directions and streamlining programs to the various ongoing units. If the Agency designates project managers who serve as supervisors rather than technical experts they may avoid some of these conventions’ limitations. In addition, the current depth of technical expertise could still exist in the separate units; however, the project manager could serve as an incentive for streamlining rather than further Agency entrenchment. Moreover, require the project managers to meet routinely and informally to compare approaches.

Recommendation 1.2. Improve Communication

EPA should improve communications in and among its offices that participate in the effluent guidelines process, as well as by increasing communication with stakeholders.

Internally, delays in the communication process occur:

1. Within the core work group of a specific regulation across technical, economic and legal staff;
2. Within the principal divisions concerned with Effluent Guidelines (Engineering and Analysis Division, Office of Science and Technology, Office of General Counsel) across multiple regulations; and
3. Across EPA program offices if the rule is a cluster rule or is attempting to pattern a rule after a cluster approach when separate program timetables prevent formal cluster rulemaking.

Externally, delays occur:

1. With the Office of Management and Budget (OMB), which reviews survey questionnaires and draft proposed and final rules; and
2. With the stakeholders who historically have not been updated on the status of a rule until it is published as a proposed rule in the Federal Register. This group submits extensive public comments to which must then respond.

The Task Force strongly endorses the principles and approaches laid out in the Administrator’s June 15, 1994 Memorandum entitled “Initiation of EPA’s New Regulatory and Policy Development Process.” The processes and steps outlined, if followed within the Effluent Guidelines program, will go a long way to improving the communication process and eliminating

delays due to communication. The Task Force especially recommends the following principles from the new process:

- a. Lead Assistant Administrators/Regional Administrators have responsibility for identifying appropriate internal and external stakeholders for each action and for ensuring opportunities for their involvement from the beginning of the process.
- b. For actions being developed by cross-Agency workgroups, all workgroup members share responsibility for the work and working together to produce a quality action. Workgroup members must fully participate from the beginning and stay engaged; no “Late hits.”
- c. Each workgroup member will wear an “Agency-wide hat,” and work together as a team.
- d. Disagreements will be resolved early, fairly and efficiently, but the production of quality actions, rather than consensus, is the goal.

The Total Quality Management tradition asks that the project manager treat his or her experts--whether internal or external--as customers, by identifying their needs early, and fulfilling them directly. This can best be accomplished by making communication more frequent and simplifying the communication by consolidating data into key points and issues. By increasing communication, sharing data and experiences, improving trust and building partnerships, long regulations will be reviewed more quickly and key issues will be more adequately supported limiting the need for the public to submit excessive comment.

Recommendation 1.3. Internal Review Delays

EPA should modify its review processes to delegate some policy decisions.

The historical EPA process for Agency-wide review and sign-off of regulations appears to be a problem due to the need to obtain consensus from all participants, and sometimes because of an excessive number of participants. This contributes to delays and frequent last-minute “fire drills” to obtain consensus.

Following from the cluster approach in the Pulp and Paper effluent guidelines, the Task Force would like the “project champion”/project manager to have cross-cutting responsibilities that allows the pulling together of staff details across all the relevant divisions and media. This builds from the Pulp and Paper success in using one attorney for air and water programs. The Task Force suggests that this project manager have access to the needed channels, not just one media division.

! When trade-offs are necessary, the project manager should be able to assemble all

relevant legal, technical and economic staff for a sit-down session.

- ! Avoid solution by memo or phone.
- ! Attempt to articulate choices early, before the package goes forward.
- ! EPA should develop a procedure to move forward on a rule package without absolute consensus.

There needs to be a redefinition of consensus decision making to ensure participation in constructive solution building. Consensus decision making should not be used as an excuse to obstruct the decision process.

The Agency's new Regulatory and Policy Development Process requires development of an "Analytical Blueprint" for Tier 1 and 2 rules, to outline cross-media and inter-agency concerns. The new process also eliminates the "Red Border" review process, which required formal Agency-wide concurrence on rules. The Task Force supports these changes.

Recommendation 1.4. Legal Counsel

The project manager must be trained to identify the need of early Office of General Counsel (OGC) input.

The role of the OGC attorney is critical to the timely issuance of a proposed or final guideline. The participation of the attorney has varied over time and from project to project. When issues are not raised until late in the process (e.g. when identified during the review of a draft preamble, or draft response to comments), additional data gathering or analysis is difficult. Early attention to issues, and involvement by legal counsel in the rulemaking development process to identify issues not apparent to the EAD staff, would limit these last minute crisis. Historically, attorneys who have had litigation experience with Effluent Guidelines tend to be more appreciative of early participation in rule development.

Because many project managers and work group members are recent hires (less than 5 years), they are not familiar with the litigation issues from past guidelines. Familiarity with these (or at least the major) issues would help in the identification of required data gathering and analysis as an earlier stage. Likewise, earlier attorney involvement would result in better-framed issues and data definition resulting in a more concise regulation.

2. Data Collection and Analysis

The Task Force recognizes the fundamental dilemma facing EPA as it gathers information for a new set of guidelines: those with the best information about the industry to be regulated--the members of the industry itself--are also those with the greatest interest in the

outcome. It is therefore difficult for the Agency to believe everything they are told by members of the industry. Industrial trade groups may or may not be a less biased source. At present the information obtained by the Agency from the industry is supplemented by reports prepared by consulting firms whose specific industry knowledge is often somewhat scanty. In addition, it is difficult to transfer this information from consultants to the Agency.

However, there may be other sources of industry information that the Agency does not take advantage of often enough. For example, often POTWs have a good idea of what is practiced and what is possible by the firms in their region, especially those firms that discharge into sewers. In addition, state water quality authorities may be good sources of information about the industries with a strong presence in their respective states. Both these regulatory groups understand industry treatment processes and the effectiveness of those processes.

Recommendation 2.1. Stake Holder Involvement

The Effluent Guidelines Project Manager should obtain stake holder involvement early in the process.

EPA needs to work with and build upon information from industry, states, POTWs and the environmental community early in the process, from design of the questionnaire to the difficult stage of subcategorization. Better-defined questions could be designed which would result in usable pollution prevention information.

EPA needs to conduct meetings to present ideas and get feedback from stake holders prior to the survey and plant visits. Describing the forthcoming standards as a level of magnitude (such as __ppb) may also improve the transfer of critical data between the two EPA groups-- OGC and EAD--which have widely different backgrounds. Additional meetings after data analysis should be conducted as needed by category.

While such meetings should be open to the public, the main purpose of the meeting would be the transfer of information between the Agency and the industry to be regulated. This would be an appropriate forum for soliciting industry cooperation and participation in EPA's information gathering process.

A model for this sort of process is the discussion between EPA and the paper industry that precede the recent rulemaking process in that industry. Public meetings have also been held in 1994 for the Centralized Waste Treatment, Metal Products and Machinery, Pharmaceuticals, and Coastal Oil and Gas categories. At a minimum, EPA should pursue teleconferencing the public meetings to Regional EPA offices to improve feedback if only one meeting can be held for a category. EPA should use a mediator to move these meetings forward without prejudice.

Recommendation 2.2. Staff Training on Surveys

EPA should provide proper training and guidance to staff in conducting surveys.

Apparently, the design of survey instruments for collecting information from industry is a task that is often assigned to the newest and least experienced professionals in the Engineering and Analysis Division. The individuals are engineers who usually do not have specific expertise in survey research methods. The Division needs to give more attention to this crucial first step in the information-gathering process by ensuring that those conducting surveys are properly trained.

While there is no real substitute for experience, it would be helpful if the Division could send its core work group members to a training course in survey research methods, which would cover both the theory of sampling and the design of survey instruments. The latter would include such topics as logical flow in questionnaires how to avoid open-ended questions, the importance of questions and exhaustive and mutually exclusive alternatives, the planning of skip patterns, and the importance of pretesting. In the absence of a suitable training course outside the Agency, EPA should develop a survey training course based on institutional memory. EPA contractors should also be trained to improve consistency and data transfer.

Recommendation 2.3. Obtain OMB Approval of a Generic Questionnaire

EPA should work with OMB to develop an approval process for screeners and full questionnaires. Ideally, this process would include OMB approval for a generic screener for multiple categories. EPA rules have frequently been delayed by OMB review of questionnaires. Key to this approval process may be the need by EPA to show that stakeholders have been involved with the survey development, which would support the Agency's assertions that the information needed is critical for development of the regulation, and that the data gathering is not a burden for the industry respondents.

Recommendation 2.4. Optimize Survey Questions

EPA should look critically at the need for individual survey questions to keep the number of questions to ones absolutely needed. Cooperative development with industry groups on the questionnaire is encouraged.

Although EPA regularly consults with industry during survey development, the questionnaires are often quite lengthy and can be both a burden on the firms required to complete them and a disincentive to cooperate with the Agency. Questionnaire length can be minimized if the only questions that are allowed on the questionnaire are those for which the agency knows with some precision how the answer will be used. In addition it may be useful to examine previous questionnaires to identify questions that were not subsequently contributory in the rulemaking. The Agency should try to develop at least a portion of the questionnaire as a generic form independent of the category. Industry and state/POTW review should be used as a pretest condition and the questionnaire should then be revised as appropriate.

Recommendation 2.5. Electronic Transfer of Data

EPA needs to develop a method to allow electronic transfer of questionnaire responses.

Manual entry of questionnaire data into the computer is now required, a process that substantially duplicates the original entry of data onto forms. For short screener questionnaires, EPA is successfully utilizing mark-sense technology to simplify form completion and streamline the data entry tasks. No such technological improvements have been made, however, for the longer detailed technical/economic questionnaires.

Two years ago EPA investigated the idea of having firms submit questionnaire results in computer diskette form, using custom-designed software, but had to abandon the project due to lack of time and cost overruns. This format should only be used for analytical data transfer.

It appears to the Task Force that this earlier effort may have been too ambitious, in that it apparently attempted a comprehensive solution to the data entry problem. An automatic data transfer system does not have to be comprehensive to be useful. There are certainly large parts of the required data that are quite well suited to electronic transfer, and it is on these parts that the effort should be concentrated initially. After a partial system is up and running the Agency can, if warranted investigate ways of bringing the rest of the data into the automatic system. For example, the economic portion of the questionnaire, which tends to be more standardized from industry to industry, could be automated first.

Recommendation 2.6. Review and Use of Historical Data

EPA should initiate a project to statistically analyze the 51 effluent guidelines to inform future guideline development.

The 51 existing effluent guidelines represent an investment of approximately \$300 million in intensive, quantitative case studies. Decisions, such as the choice of industry, the concentration or mass limits and the marginal cost of control can be statistically analyzed to investigate the systematic determinants of the decision and whether the guidelines exhibit large or small variation across applications.

Such analyses are being pursued in the Superfund program which has let a contract to analyze the records of decision at Superfund sites. Recent professional articles investigated the

determinants of EPA's pesticide regulations¹ and the rate of offshore oil and gas leasing in the Department of the Interior². In the case of the effluent guidelines, statistical research could be directed at selection models to forecast which industries are selected and at the actual outcome, such as concentration or mass limits or marginal cost of control. The quantitative record prior to promulgation should be augmented by quantitative studies of the relative effectiveness of different guidelines in achieving their objective after promulgation.

Such analyses in the Effluent Guidelines program could be used as prediction models to help inform management by:

- ! assessing the determinants and variability of limit or marginal cost levels, to consider setting either common limits or common marginal costs of control (the latter as suggested for economic efficiency);
- ! informing work on analytical techniques to reduce bottlenecks;
- ! suggesting areas of more or less intensive research on factors that affect limit levels.

3. Laboratory Analysis Methods and Support

A critical potential bottleneck in the Effluent Guidelines process is the need for development of laboratory analysis methods to support the characterization of process waste and effluent streams. It is not clear which organizational units within EPA have responsibility for identifying, funding, and developing new modified laboratory procedures for any type of media analysis. Consequently, individual program offices, such as the Office of Water, initiate development of laboratory methods needed for the various aspects of the water program. No one group is looking at the needs across media, and as a result, multiple laboratory methods are developed and required for the same chemical. This lack of organization can lead to delays in the Effluent Guidelines development process and to duplicate efforts in developing laboratory analysis methods. The Clean Water Act is the only statute which does not require a lab certification program. As a result, funding for wastewater testing is limited. The Task Force makes the following recommendations as a step toward better management of the process.

¹ Cropper, M. et. Al., "The Determinants of Pesticide Regulation: A Statistical Analysis of EPA Decisionmaking," **Journal of Political Economy**, February, 1992.

² Farrow, S., "Does Analysis Matter? Economics and Planning in the Department of the Interior," **Review of Economics and Statistics**, February, 1991.

Recommendation 3.1. Early Identification of Needs

The Office of Water in conjunction with the Office of Research and Development should develop long range projections of candidate industries for effluent guidelines and the need for development of analytical methods.

An area of the effluent guidelines process that consumes a great deal of time and of funding is the sample collection and analyses steps. In some cases appropriate analytical methods do not exist and need to be developed. Early identification of this need is important so this phase of the process does not become a bottleneck. This process should be implemented in conjunction with the Effluent Guidelines biennial plan.

Recommendation 3.2. Background Information for Methods Development

When candidate industries are identified, the Office of Water and the Office of Research and Development should contact such groups to define sampling protocol, matrix interferences and analytical electronic deliverables that can affect the analysis results.

Existing analytical methods can be significantly affected by the presence and types of other chemicals in a sample. By contacting industrial groups early in the process, EPA can determine the potential for interferences affecting analyses methods. EPA could then determine the need for additional work on existing analytical methods, or the types of problems that need to be factored into the development of new methodologies. Advance work in these areas can keep the sample collection phase of the effluent guideline process running smoothly. EPA should explore performing one sample while obtaining data prior to the normal sampling cycle of the rulemaking process.

Recommendation 3.3. Priorities and Funding

EPA should provide appropriate priorities and funding to either EPA laboratories or contract laboratories to assure that analytical methods are ready when sampling and analysis need to begin and that such work takes advantage of existing methods in other media programs.

Currently the development of laboratory methods in the effluent guidelines process is funded from the budget for the individual rulemaking projects under development. No one is looking at the need for laboratory methods from the larger picture of the needs of the water program as a whole, or the availability of data from other media programs, such as drinking water and solid/hazardous waste. These data should be defined as usable to the Agency, especially to improve cluster rulemaking opportunities.

If the above two recommendations are followed, EPA will know very early what, if any,, work needs to be done on sampling and analytical procedures. The next step is to provide

necessary funding, again early in the process, so that sampling and analytical development work are done in advance. Such work will then not delay the initiation of the sample collection phase of each project. Finally, the Office of Research and Development must be involved in coordinating methods of development across all media programs to avoid duplication of effort and to minimize the development of different analytical methods for the same chemical.

Recommendation 3.4. New Analytical Methods

EPA should encourage and support new analytical methodologies for the pollutants of concern that will recognize and work to decrease inter-laboratory variability, and that will allow for lower levels of detection.

Analytical development needs are not finished when EPA completes the sample collection portion of its effluent guidelines development process. Once effluent limits are established, the states, pretreatment control authorities and regulated facilities need to verify that limits are being met. Little is gained when analytical methods have levels of detection that are higher than effluent limits. Large inter-laboratory variability for methods makes it very difficult or impossible for pretreatment control authorities or states to determine the reasons for discrepancies between facility sampling data and their own sample data.

The establishment of an effluent guideline in the regulations is only the beginning of the process. Without adequate analytical procedures to verify compliance, it is impossible to determine the water quality gains, if any, being made. EPA, having national responsibility, should provide leadership and support, and work with its own laboratories, private laboratories, and state and local government laboratories to ensure that appropriate analytical procedures are in place.

Recommendation 3.5. Multi-Media Methods

EPA should develop approved methods across multi-media such as drinking water, wastewater, hazardous waste, and air (if applicable).

As EPA programs and targeted pollutant lists expand, multiple procedures for the same pollutants has become an increasing problem for permit and control authorities. Industries and laboratories are having data rejected by authorities because the wrong method was used for the particular medium. Frequently the difference for a method used on different media is a difference in quality control. Laboratories are spending excessive amounts of money validating multiple quality control measures for different methods on the same instruments. This is counter-productive to all EPA programs.

Likewise, development of cross-media methods could result in less of a need to develop new methods for an effluent guideline since an improved usable database could exist prior to the development of a new guideline. This will support cluster regulation such as air and water with

the Pulp and Paper regulation. Progress in cross-media methods could be made by a multi-division committee empowered by the Directors.

4. Industry Subcategorization

The Clean Water Act requires EPA to assess the following factors in considering and determining the number of subcategories within an industry segment:

Manufacturing processes, plant size, geographic location, age of equipment and facilities involved, wastewater characteristics and controls, and non-water quality impacts.

Under the provisions of the Act, it is required that this analysis for an industrial category result in the establishment of national effluent guidelines limits that are technically and economically achievable.

In the past, subcategories for large industrial categories has been established largely based on raw waste loadings to the treatment system since historical reliable effluent data from the treatment system did not exist. In addition, the establishment of greater numbers of subcategories have occurred in order to prevent court challenges to individual rulemaking based on the uniqueness of an industry. More extensive subcategorization is expensive because of the additional data collection and analyses that must occur. This also requires a longer time frame to establish a final regulation.

The following recommendations are made in order to minimize the number of subcategories and streamline the process.

Recommendation 4.1. Stakeholder Input on Subcategories

EPA should begin working early with primary stakeholders to determine potential subcategories in order to avoid problems and delays later in the process.

The acquisition and evaluation of technologies and performance data for an industry category is a time consuming and complicated process. In order to streamline this procedure, it is recommended that EPA start early in conducting site visits and working with industry to acquire initial information. It is extremely important that the critical subcategory decisions be identified early in the process so that a meticulous survey construction can be developed eliminating the statistical interferences which would result in the subcategorization being challenged in court. Other interested parties including state agencies, POTWs and public interest groups should also be consulted early in the process in order to consider their input and concerns.

Recommendation 4.2. Effluent Performance Data

EPA should optimize the number of subcategories for direct and indirect dischargers by utilizing treated effluent performance data for conventional pollutants and comparable manufacturing processes as well as the other current elements required by the Clean Water Act.

“For the most part, subcategorization has been based upon products, processes, and water use, and tier effects on the character of the wastewater, either by pollutant type or pollutant loading.”³ This was in part due to the fact that treatment technology was not highly developed for toxic pollutants when the Effluent Guidelines program started in the 1970's. As the program has matured, toxic pollutant treatment technology has become better defined in both type and capability. Today, many industrial subcategories will have their waste treated by the same process simply because of the required magnitude of the treatment needed to attain a defined level of standard. In the end, there are generally fewer differences between subcategories than originally defined by the products or processes.

Implementation of a regulation can be simplified by making smaller number of subcategories. This is due to the fact that a building block approach must be used to combine subcategories and categories at a site to develop a standard. The basis of the combined waste stream standard must be documented and continually audited to provide a defensible and enforceable standard. Standards which are not enforceable frequently have been the victim of poor combined waste stream judgements by the permit writers. Elimination of additional subcategories can streamline implementation, create more enforceable standards and provide better program effectiveness quickly. EPA must critically review the subcategory standards after calculation to determine if there is a “common sense” method of reducing subcategories which do not really have a significant difference in standards. In the past, there have been too many instances of small magnitude differences in standards.

EPA should continue a trend which used control technology performance to assist in determining appropriate subcategories within an industry. An example of historical record that used this concept was the Organic Chemical, Plastics and Synthetic Fibers category which reduced 176 subcategories to 7 based on this type of analysis.

³ Henry D. Kahn and Marvin B. Rubin, US EPA, “Use of Statistical Method in Industrial Water Pollution Control Regulations in the United States”, *Environmental Monitoring and Assessment*. Vol. 12, pp. 129-148. 1989.

Recommendation 4.3. Surrogate Pollutants

EPA should search for technically defensive surrogates for toxic pollutants--either in the process waste stream or final treated effluent--that could be used to represent a group of parameters of concern.

Surrogates would reduce the number of substances that would have to be sampled and analyzed as part of the effluent guidelines process. In addition, this approach would reduce the number of parameters that would have to be tested by industry in order to demonstrate compliance. Finally, less parameter development should shorten the time and expense to develop proposed limits. The use of surrogates may allow the folding or compacting of subcategories altogether.

Recommendation 4.4. Indirect Discharger Subcategorization

EPA should establish a different (small) number of subcategories for indirect dischargers since only toxic pollutants are regulated for indirects as opposed to toxics and conventionals for direct dischargers.

The differences between indirect dischargers are usually smaller than those for direct dischargers since only toxics are regulated rather than toxics and conventionals. Historically, the subcategorization is driven by the differences in direct dischargers which includes these additional pollutants. Additionally, treatment technologies in other historical categories has demonstrated that more uniform treatment technologies exist for these indirect toxic dischargers which result in less of a need for multiple categories. Legal and statistical concerns should be addressed early in the process so that the correct data is collected to support smaller numbers of subcategories.

An example of this concept is the Organic Chemicals, Plastics and Synthetic Fibers (OCPSF) rule, which only has two indirect subcategories compared to seven subcategories for direct dischargers.

This recommendation does not address the effect that EPA's consideration of pollution prevention measures will have on subcategorization in the effluent guidelines process.

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